NUCLEAR DIVISION NEWS

UNION CARBIDE

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 1 — No. 1 | OAK RIDGE, TENNESSEE | Thursday, February 12, 1970

Safety Record in 1969 Termed Outstanding

An outstanding safety record was achieved during 1969 by the four Nuclear Division facilities. Employment at the facilities totals more than 14,000.

During the year the disabling injury frequency rate for the facilities was 0.40. The disabling injury frequency rate is the number of injuries per million hours worked. The Nuclear Division figure compares to a 1968 frequency rate for all U. S. industry of 7.35, and a chemical industry rate of 3.74.

Safe Industry

"This accomplishment by our employees in the field of safety during 1969 clearly shows that the nuclear industry is one of the safest in the nation," stated Roger F. Hibbs, President of the Division.

The safety program encompasses formal safety meetings, inspection programs, an extensive education program which includes issuance of safety messages and bulletins, and a safety award incentive program. Hibbs added that the safety record can only be maintained by the active interest and daily attention on the part of all employees.

Paducah Performance

The Paducah Gaseous Diffusion Plant went more than 15 months without a disabling injury. From June 15, 1968, to September 24, 1969, the plant's employees worked more than 2,700,000 hours without a disabling accident. The plant had two accidents in the latter part of the year for a frequency rate of 0.92.

The Oak Ridge Y-12 Plant had four disabling injuries, for a rate of 0.32. At one point, the plant totaled more than 9 million hours without a disabling injury.

The Oak Ridge National Laboratory had only two disabling injuries and, from July 4, 1968, through August 20, 1969, worked 7,800,000 hours without a disabling injury. The frequency rate at the Laboratory was 0.27.

ORGDP Has 0.60 Rate

A disabling injury frequency rate of 0.60 was recorded at the Oak Ridge Gaseous Diffusion Plant where three accidents occurred during the year. The plant accumulated more than 2,300,000 man-hours during one period without a disabling injury.

The 1969 frequency rate of 0.40 was the second lowest in more than 25 years at Nuclear Division facilities. An all-time low rate of 0.23 was set in 1968. Prior to that year, the lowest disabling injury frequency rate for the facilities was 0.55, recorded in 1967.

6-Page Publication Arrives on Scene

A new publication, Nuclear Division News, **arrives on the Oak Ridge scene today. The News is designed to feature items of general interest to all Division employees.**

However, information about your own facility will continue to be featured. Pages 3 and 4 are devoted primarily to information about the Oak Ridge Y-12 Plant and the Oak Ridge Gaseous Diffusion Plant.

The four "outside" pages will be devoted to news and features of interest to all employees. James A. Young, former editor of the Y-12 Bulletin, **will serve as editor of the new six-page publication. He can be contacted at either 3-7100 or 3-5345.**

Hibbs Stresses Potential of Facilities In Dealing With Problems of Nation

The potential of the facilities operated by the Nuclear Division in coping with problems facing the nation and the world was stressed this week by Roger F. Hibbs, President of the Division, at a meeting of the Cosmopolitan Club in Oak Ridge.

Discussing some of the areas in which the Nuclear Division facilities are playing an important role, Hibbs touched on a few of the Division's major activities. These include the provision of energy, work in the life sciences, problems related to various aspects of the environment, and human resource development.

Hibbs

Hibbs also made specific reference to the recently - announced layoff of approximately 350 employees at the Oak Ridge National Laboratory, pointing out that it is always a very difficult time for all concerned when it is necessary to reduce the size of the staff. He added, however, that over the years all Nuclear Division facilities, at one time or another, have been in situations similar to that now faced at Oak Ridge National Laboratory.

"These facilities have bounced back and, in fact, have been made stronger in the long run," Hibbs explained. "I am convinced that despite budget limitations, ORNL has the opportunity to continue as one of the world's outstanding scientific research centers."

Hibbs said that within the Division, emphasis always has been placed on the quality of the product rather than the size of the operation.

"Any large organization has to avoid trying to be all things for all people," he stated. "This approach frequently results in diluting efforts to the point that few things get done well. Consequently, it is our policy to do those things in which we are expert and do them well, while not expanding our activities for the sheer sake of size."

Reviewing some of the Division's major activities, Hibbs pointed out that the largest area of endeavor is the provision of energy. He pointed out that the need for enriching services for nuclear electric power plants is mounting at an ever-increasing pace. During 1969, more than $68 million in enriching services was provided by the Oak Ridge Gaseous Diffusion Plant.

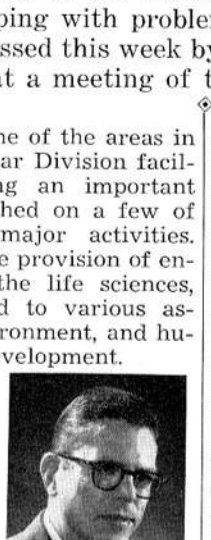
He also discussed the molten salt reactor program at Oak Ridge National Laboratory and explained: "I am convinced that variations of this concept will make major contributions to the nuclear energy program for many years into the future."

Reporting on the provision of energy by controlled fusion, Hibbs said the Thermonuclear Division at the Oak Ridge National Laboratory is at the forefront of fusion technology.

He pointed to the life sciences as an area of endeavor which should grow rapidly as a major phase of the work in Oak Ridge. He cited the contributions of the Molecular Anatomy Program, adding that the work of the Biology Division in genetics, biochemistry, biophysics, co-carcinogenesis and others "is preeminent in the world."

Hibbs described the combination of skills and facilities available in the Nuclear Division as ideally suited for leadership in solving problems associated with various aspects of the environment. "If we continue to maintain our strong concern for the quality of our work, and strive to make genuine contributions in needed areas, the impact of Oak Ridge can expand considerably in this field," he said.

He also discussed the Training and Technology project at the Oak Ridge Y-12 Plant, and the recently developed pilot cooperative program designed to encourage Negro students to pursue college studies in science and engineering.



Lloyd M. Cooke

Cooke to Head Union Carbide Urban Affairs

Lloyd M. Cooke has been appointed director of urban affairs for Union Carbide Corporation.

Dr. Cooke will be responsible for implementing corporate policies and programs in the area of urban affairs and assuring that these are applied consistently throughout all Union Carbide's operations. He will guide and coordinate the corporation's continuing efforts in minority group employment including participation in efforts to solve hard-core unemployment and other community problems in urban areas where Union Carbide has facilities.

He will work directly with gov-

Continued on Page 2

3801-1 Paducah

'TAILS' LEAVE PADUCAH—Symbolizing the nation's growing nuclear energy program is this parade of trucks transporting uranium "tails" from the Paducah Gaseous Diffusion Plant. Each truck is carrying a 10-ton cylinder of depleted uranium, which has been reduced from 0.7 to 0.2% uranium 235. The material is being returned to customers who furnish normal feed for enriching. During December, a record 45 truckloads left the plant within five work days. The Paducah and Oak Ridge Gaseous Diffusion Plants are partners in two vital Atomic Energy Commission programs which provide uranium enriching services to commercial power plants throughout the free world. Through the Lease-and-Sale Program, private industry can lease enriched uranium; and through Toll Enrichment, nuclear customers supply their own uranium and pay for the enrichment services. The enriched uranium, up to about 1% U-235 after processing at Paducah, is shipped as "feed" to Oak Ridge for further processing to meet customer needs.

Next Holiday Set For February 23

Monday, February 23, is an official holiday for all employees at the Oak Ridge facilities operated by the Nuclear Division. The date will mark the "official" celebration of George Washington's Birthday, which falls on Sunday, February 22.

Only a level of work force necessary to assure continuous operation and protection of the facilities is required on declared holidays.

MAN Instruments Featured at 'Plant Separations' Meeting

Zonal Centrifuge Produces Fibrin In Solid Sheets

By JOHN HAFFEY

The zonal centrifuge, a key research tool developed by Union Carbide Corporation's Nuclear Division, can now produce pure "sheet fibrin" — a blood protein with potential applications in medicine.

The system was one of several new techniques and tools demonstrated at the Workshop and Microsymposium on Separation of Plant Materials, which was held recently at the Biology Division and MAN Program of Oak Ridge National Laboratory. Featured in workshop demonstrations were the zonal centrifuge and the recently developed GeMSAEC Fast Analyzer, an automated multisample spectrophotometer now used in clinical and industrial analyses. Both devices were developed by ORNL, in cooperation with the Oak Ridge Gaseous Diffusion Plant.

Discovered by 'Accident'

The fibrin separation technique was discovered through a "lucky accident," according to Julian P. Breillatt, MAN Program biochemist and author of one of the 18 papers presented at the meeting.

Describing the system to workshop participants, Dr. Breillatt said he had chanced upon the method several months ago during a centrifuge experiment with a macroglobulin sample. Unlike earlier related tests, he had not completed the usual precipitation steps which would have eliminated the fibrin and several other protein components from the test sample before centrifugation.

After the run, he noticed an unusual wax-colored sheet on the rotor wall, which stayed in place even after the other materials were poured out. The solid, somewhat elastic material was easily removed (see photo) and tested. It proved to be fibrin — a blood protein whose major function is in clot formation.

Subsequent tests under controlled centrifuge conditions have shown that one pint of blood plasma will yield a 1/25-inch-thick fibrin sheet that is about 3 by 4 inches. Before the centrifugation technique, fibrin did not exist in sheet form, although it has been used as a foam to control bleeding.

Body 'Recognizes' Fibrin

Sheet fibrin from human blood plasma may find applications for treating burns, for artificial organs or for other internal reconstruction, Dr. Breillatt said. "Since the protein is immunologically neutral, it might protect an implanted artificial organ from the body's rejection system," he speculated. The body would "recognize" the blood protein and not attack it.

But Dr. Breillatt also pointed out that the body might tend to absorb the fibrin in time, although an offshoot of this might prove advantageous. "Conceivably, fibroblasts ("young" connective tissue cells) could grow into the fibrin mesh," he said. "This would result in a sheet of the body's own tissue."

He also reported that other scientists were evaluating the fibrin sheets, including a group at the University of Cincinnati which is testing its application as a burn dressing. The fibrin may retain body fluids and, if the "new tissue" hypothesis proves true, it would not only combat infection but also would speed growth of healthy tissue.

40 Scientists Attend

ORNL metallurgists are collaborating to test fibrin's tensile strength. The faster and longer the centrifuge run, the more centrifugal force is generated to "plaster" the fibrin against the rotor wall and the more compact is the fibrin sheet. The material's tensile strength may be increased by sedimenting the fibrin into a fabric mesh for some applications.

Nuclear Division scientists and technicians joined with visiting specialists in offering practical lessons in the operation, maintenance, and use of both the zonal centrifuge and the GeMSAEC Fast Analyzer.

Participating in the workshop and microsymposium were 40 scientists from the United States. R. Clinton Fuller, Director of The University of Tennessee-Oak Ridge Graduate School of Biomedical Sciences, and Carl A. Price, Professor of biochemistry at Rutgers University, were chairmen of the meeting. George B. Cline, assistant professor of biology at the University of Alabama, was in charge of laboratory sessions.

4 Division Papers

The theme of both the workshop and microsymposium was the application of modern scientific tools and techniques for separating plant particles for research.

Nuclear Division presentations included:

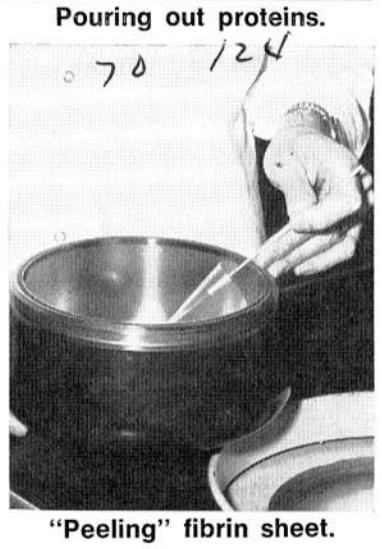
Carl A. Albrecht, Molecular Anatomy (MAN) Program, ORNL, "Application of zonal centrifuges to the mass isolation and fractionation of rat liver nuclei."

Julian P. Breillatt, Molecular Anatomy (MAN) Program, ORNL, "Predictive techniques for design of zonal separation methods."

John L. Gerin, Molecular Anatomy (MAN) Program, Rockville Laboratory, Rockville, Md., "Virus isolation in zonal centrifugation."

Dean A. Waters, Separation Systems Division, ORGDP, "Ultracentrifuge design parameters."

Pouring out proteins.



"Peeling" fibrin sheet.

IT STRETCHES! Here Julian P. Breillatt demonstrates zonal centrifuge system for obtaining pure fibrin sheet. After run in centrifuge, other proteins, still in liquid form, are easily poured out. The fibrin sheets are peeled away from the rotor wall. Above, conference participants J. L. Liverman (from left), Dr. Breillatt, and George B. Cline test the protein sheet's elasticity. Scientists are evaluating fibrin sheets for possible medical applications.

NEWS

Published Bi-Weekly For The Employees Of UNION CARBIDE CORPORATION

UNION CARBIDE

NUCLEAR DIVISION

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Uses ORNL's Californium 252

Atomic Camera Sees Hidden Metal Flaws

A portable atomic camera that can "see" through metals to spot flaws and also detect hidden quantities of drugs or narcotics has been developed through Atomic Energy Commission research.

The camera, developed at the AEC's Pacific Northwest Laboratory at Richland, Wash., is loaded with the radioisotope Californium 252 which was produced at Oak Ridge National Laboratory. PNL is operated by Battelle Memorial Institute for the AEC.

Californium 252 is used in the 100-pound camera to generate neutrons — invisible subatomic particles which enable the camera to take a "picture" similar to a conventional X-ray.

May Detect Hidden Drugs

The new camera, however, records many things not visible by X-ray. It can easily penetrate most metals and other heavy opaque materials to detect weaknesses or foreign substances. It can detect drugs and narcotics hidden in metal containers or concealed in other objects, thus providing a potentially valuable tool for customs or enforcement officers. Because they are made largely of light atoms, drugs and narcotics are not easily detected by normal X-ray techniques, but are easily observed by neutron radiography.

The prototype camera uses 268 micrograms (nine millionths of an ounce!) of Californium 252 which was prepared as an oxide material and encapsulated in a small tube at the Transuranium Processing Plant at ORNL. The material was shipped from Oak Ridge to Washington state last May. Californium 252 does not exist naturally on earth and is produced in Oak Ridge by bombarding Plutonium 242 (another man-made element) in ORNL's High Flux Isotope Reactor—the world's most powerful research reactor.

Produces More Neutrons

The use of Californium 252, which produces more neutrons than other sources currently obtainable, made it possible to design a radiographic device which could be set up and operated wherever needed. In neutron radiography now being used industrially for nondestructive testing, the neutrons have to be obtained from a non-portable accelerator or nuclear reactor.

Rich Mountain Trip Planned by Hikers

The Smoky Mountains Hiking Club will trek to Rich Mountain Sunday, February 15, for a view of Cades Cove from the fire tower. The round-trip hike is about nine miles and the ascent and descent routes will be different for hikers.

Knoxville hikers may contact June Inman, telephone 577-7444; and the Oak Ridge leader to contact is Nola Williamson, telephone 482-4669.

The hike is described as medium-to-easy; canteens are advised since there is no water on Rich Mountain.

Cooke Appointed

Continued from Page 1

ernmental and private agencies in this field, such as the Federal Equal Employment Opportunity Commission, the National Urban League, the National Alliance of Businessmen, and the Urban Coalition.

A graduate of the University of Wisconsin where he received his bachelor's degree in 1937, Dr. Cooke has a doctorate in chemistry from McGill University. He has been a member of the Union Carbide organization since 1957, and has been identified with both technical and market research. Most recently, he has been manager—planning for the corporation's Films—Packaging Division, headquartered in Chicago where he has also been active in urban affairs.

Dr. Cooke is a native of LaSalle, Ill., and lives with his family in Downers Grove, Ill. When he assumes his new position, he will move to New York, but will continue to be identified with urban affairs in Chicago as well as other areas where Union Carbide operations are located.

The author of a number of scientific works, Dr. Cooke is active in various technical organizations in his field. In 1969, as a director of the American Chemical Society, he presented to representatives of Congress and the Cabinet the book entitled "Cleaning Our Environment—The Chemical Basis for Action."

UNION CARBIDE

—Y-12 BULLETIN

$8 Million Assets

State Of Credit Union's Health Is Good Members Are Told At Annual Meeting

Y-12ers heard the good news that their Credit Union is in good health at the annual meeting held Thursday, January 22.

J. Paul Blakely and Thomas J. Stephens were reelected to the Board of Directors for three-year terms. At the election of officers Blakely was named president and Stephens, vice president. Board member Lorena Causey Matthews was renamed manager-treasurer; Dick Loveless was named secretary; Jim Morehead was selected as supervisory chairman; and Harley Orange was chosen as educational director.

With assets of over $8 million, the officers of the Credit Union reported a year of sound operation. A total of $6,024,982.53 was loaned on 5,844 loan applications in 1969; seven loan applications were rejected during the year. Members borrowed money to purchase real estate, automobiles, campers, trailers, boats, motors, and various appliances, as well as for educational benefits. Although interest rates across the country are on the rise, the Credit Union still maintains the original maximum rate of one per cent per month on the unpaid balance that it has charged since inception almost 20 years ago. Never in its entire history has the Credit Union placed a late charge against any of its members.

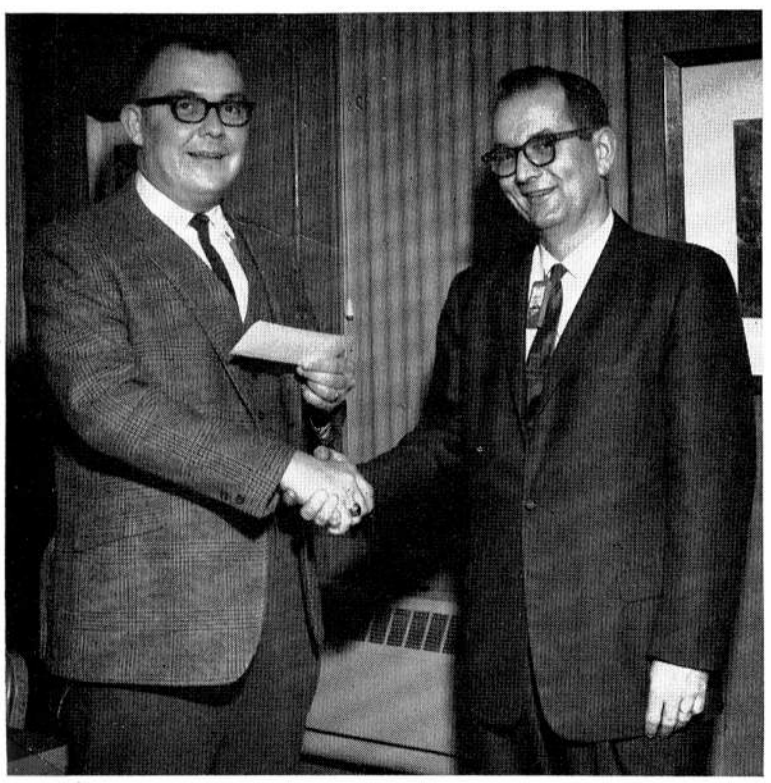
For the last six months of 1969, quarterly dividends were paid at the rate of 5.25 per cent per annum, the highest in Y-12 Credit Union history! When compounded quarterly, 5.25% declared rate becomes an effective rate of 5.34% per annum. The limit on deposits was lifted last year, also, allowing members to deposit shares in any amount up to the ceiling of $25,000 per employee members. On-Line computer posting of accounts, initiated in late 1968, provides members with several advantages, both in speed and accuracy of transactions and in actual money saving, particularly for those people paid on a weekly basis. Payments are credited directly to accounts each Friday evening, thereby decreasing outstanding loan balances each seven days and thus slightly reducing the total interest paid.

With the Truth in Lending Bill becoming law in 1969, all lenders must now show the rate of annual interest that they charge. This enables borrowers to recognize immediately the cost of a loan and to compare costs from one organization to another. Since the Y-12 Credit Union is owned by its members, and since interest rates for borrowed money are usually lower and dividend rates are usually higher than anybody else's, members are urged again to utilize the many services available at the Credit Union organization. As one member put it, if you owned a grocery store, would you go down the street and buy groceries from somebody else?

Y-12 Bowling Tourney Set February 28, March 1

The deadline for Y-12's big Bowling Tournament is next Tuesday, February 17 at 4:30 p.m.

The contest is set for Y-12 bowlers Saturday, February 28; and Sunday, March 1. Alleymen who have bowled 15 games between August 1 and January 29 are eligible for the contest. Team events will be rolled on Saturday, and mixed doubles. Sunday will feature men's doubles and singles . . . women's doubles and singles as well.



BILLY T. HICKS, Training and Technology, received his 100 per cent refund recently on the Carbide Educational Assistance Program. Hicks took his master's degree from The University of Tennessee in December, 1968. So, in December, 1969, H. G. P. Snyder, superintendent of Industrial Relations, right, makes the check presentation to Hicks. The student is refunded 50 per cent of his expenses quarter by quarter . . . then the other 50 per cent is refunded one year after the post-graduated degree is bestowed.

Y-12 Paper Is Read At Albuquerque

Cook **Lambdin**

Advanced techniques for fabricating carbon fiber structures were reported in a technical paper authored by three Union Carbide development engineers at the American Society of Metallurgical Engineers Symposium on Carbon Composite Technology. The meeting was held in Albuquerque, N. M., January 28, 29.

Trent

The paper, authored by Y-12ers J. L. Cook, F. Lambdin and P. E. Trent was entitled "Discontinuous Carbon-Carbon Composite Fabrication." The physical characteristics of carbon-carbon composite materials — high strength-to-weight ratio, toughness and resistance to shock, chemicals and heat — make them appear particularly promising for use in tomorrow's industrial, aerospace and aircraft programs.

The development work described in the Y-12 report was performed in support of the U. S. Atomic Energy Commission programs.

Riders wanted from East Knoxville or Fountain City, to any portal, straight day. F. E. Clevenger, plant phone 3-5095, home phone Knoxville 522-7393.

Ride wanted from North Knoxville, Deery Street, to North Portal, straight day. H. W. Anderson Jr., plant phone 3-5583, home phone Knoxville 523-2005.

Ride wanted or will join car pool from Lake City to West Portal, straight day. D. W. Viles, plant phone 3-5244.

Ride wanted or will join car pool from 158 Wellington Circle, Oak Ridge to Central Portal, straight day. Clyde Cook Jr., plant phone 3-7805, home phone Oak Ridge 483-5328.

Ride wanted from Highland Avenue, West Outer Drive, Oak Ridge, to East Portal, straight day. Henrietta Spears, home phone Oak Ridge 482-3704, plant phone 3-5863.

Will join car pool from Inskip section of Knoxville, to East Portal, H Shift. Charles Carroll, plant phone 3-5772, home phone Knoxville 687-4390.

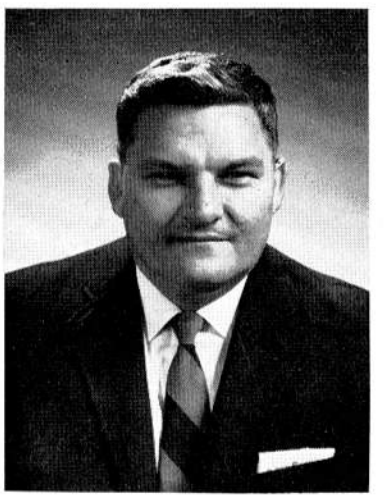
Ride wanted from Laurel Avenue, U.T. section, Knoxville, to Central Portal, straight day. Brenda Suttles, plant phone 3-7213.

Two car pool members wanted from Cherokee Hills, Kingston, to any portal, straight day. John Carriger, plant phone 3-5445, home phone Kingston 376-6492.

Fred Fox And Otis Rackley Earn February Promotions

The February 1 promotions of Fred A. Fox and E. Otis Rackley are announced. Fox becomes a processing foreman in the Metal Preparations Division, and Rackley is an equipment cleaning foreman in the Fabrication Division.

Fox is a 'real' Oak Ridge native, born here on the family farm between Solway and Edgemore Bridges. He attended two years of elementary school at Scarbrough (presently the University of Tennessee Agricultural Research Laboratory's offices), before the Fox family evacuated the area with the rest of the natives in late 1942.



Fred A. Fox

Worked In Local Area

Fred worked with Management Services, Inc.; the City of Oak Ridge; Maxon Construction; and Rust Engineering Corporation, before coming here October 23, 1963.

Mrs. Fox, the former Onah Stair, and Fred live at 402 Delta Lane, Clinton. They have two children, Frederick and daughter Venessa in school at Clinton.

Upholding the family tradition of sportsmen, Fred likes to golf and fish. He says he is also a 'retired' bowler!

Georgia-Born Rackley

E. Otis Rackley, an old-timer in the plant, was formerly in Badge and Pass. He came here June 13, 1945, after graduating from Dalton (Georgia) High School. He is a native of that northwest Georgia town.

Rackley is promoted to an equipment cleaning foreman in the General Expediting and Auxiliary Services Department.

Otis and Ann (she works in our Security Department) live in their prize new home, Route 4, Wilde Acres, Clinton, which they purchased last summer. Puttering around the house and the lawn takes up a lot of Rackley's time. He is an ardent bowler . . . and has been on winning squads many times through the years. The Rackleys like to welcome daughter Helen Thomas Dykes home as often as she can make it from Kingsport, with her husband Tommy and their two children.

E. Otis Rackley

Congratulations to Fox and Rackley!

Y-12er's Son Will Make Second Vietnam Cruise

MM/3 Ronald Lee Woodard

Machinist Mate Third Class Ronald Lee Woodard has recently returned to his home base at Long Beach, Calif. After a visit with his parents and wife, the former Phyllis Vickery, Woodard returned to duty aboard the USS Destroyer John Paul Jones.

Ronnie is leaving Long Beach this month for a second tour of duty in Vietnam. He is the son of Mr. and Mrs. H. L. Woodard. His father is in Y-12's General Machine Shop.

Fermi Is Honored

In naming the National Accelerator Laboratory, near Chicago, after Enrico Fermi, Glenn T. Seaborg, chairman of the U. S. Atomic Energy Commission, stated: "It is particularly fitting that we honor Dr. Fermi in this manner, for in so doing we further acknowledge his many contributions to the progress of nuclear science, particularly his work on nuclear processes . . . it seems singularly appropriate, therefore, that the Federal Government recognize the memory of a man who was at the forefront of science in his day by naming in his honor a laboratory . . . which will have a major international impact on our understanding of the basic structure of matter."

SAFETY SCOREBOARD

The Y-12 Plant Has Operated

40 Days Or

1,243,000 Man-Hours

(Unofficial Estimate)

Through February 8

Without A Disabling Injury

SAFETY AT HOME, AT WORK, AT PLAY

JIM OODY BECAME the number one fisherman in Y-12 for 1969, thanks to the handsome 26-pound, three-ounce muskie he landed last year in the cool, clear waters of Norris Lake. Congratulations, Oody!

Recreation Choose Its 1969 Winners In Annual 10-Species Fishing Rodeo

The Y-12 Recreation Department has announced winners in the 10-category Fishing Rodeo for 1969. Jim Oody took the biggest fish of the year . . . a prize 26-pound muskie.

Entries may not be submitted for the 1970 race. The only big exception in the new contest is the addition of the rock and hybrid bass . . . i.e. in the bass category (other) are the stripe, rock and hybrid bass.

Winners in respective categories are:

BASS—LARGEMOUTH

1. Elmer E. Green, seven pounds 13 ounces.
2. B. O. Miller, seven pounds, one ounce.
3. Russell Hopper, seven pounds, one ounce (one inch shorter than above largemouth!)
4. Willie E. Webb, six pounds.

BASS—SMALLMOUTH

1. C. L. McCarty, six pounds, four ounces.
2. John S. Orr, six pounds, two ounces.
3. A. Clay Smith, six pounds.
4. J. P. Grubb, five pounds, 13 ounces.

BASS—STRIPE

1. F. D. Marler Sr., two pounds, 13 ounces.
2. Chester L. Estes, two pounds, eight ounces.
3. C. C. Williams, two pounds, five ounces.
4. Robert P. George, two pounds five ounces (one inch shorter than above stripe!)

BREAM—BLUEGILL

1. H. N. Benninghoff, one pound.
2. Jim O'Kain, nine ounces.
3. D. L. Morrow, seven ounces.

(No 4th entry!)

CRAPPIE

1. J. M. Whatley, two pounds, four ounces.
2. Emmett L. Moore, two pounds two ounces.
3. William R. Jago, one pound, five ounces.

(Only three entries)

MUSKIE

1. Jim C. Oody, 26 pounds, three ounces.
2. Omer J. Rhea, 23 pounds, eight ounces.
3. Delano R. Smith, 23 pounds, two ounces.
4. D. L. Glovier, 20 pounds, one ounce.

PIKE—SAUGER

1. E. H. Hudgens Jr., three pounds, 12 ounces.
2. J. W. Graves, three pounds, eight ounces.
3. A. G. Steele Jr., three pounds, four ounces.
4. W. G. Story, three pounds.

PIKE—WALLEYE

1. David H. Mosley, eight pounds, six and one-half ounces.
2. John S. Orr, six pounds.
3. Elbert Scott, five pounds, four ounces.
4. Emmett L. Moore, four pounds, eight ounces.

ROUGH FISH

1. Oliver C. Neeley (Drum), 13 pounds, 12 ounces.
2. J. H. Whatley (Drum), 11 pounds, five ounces.
3. L. C. Morrow (Carp), six pounds, eight ounces.
4. Luther Thurman Jr., (Carp), six pounds, three ounces.

TROUT—RAINBOW

1. J. W. Goassage, three pounds.
2. K. W. Hill, two pounds, 12 ounces.
3. Joe Jackson, one pound, two ounces.
4. H. A. Price, one pound.

Welfare, Davy, Brewster Lead February Skeeters

February Skeet firings saw a winner from each plant. Fred Welfare, X-10, took top honors with a 49.156 handicap score. He was followed by W. Davy, K-25, with a 48.654.2 and Carl Brewster, Y-12, fired a 48.642.

January winners were all Y-12ers . . . B. Powers, 49.191; Perry Bullard, 49.156; and W. Weathersby, 49.156).

The next firing will be held at 1 p.m., Sunday, March 1, at the Oak Ridge Sportsmen's Association range. Newcomers are welcome.

February firings:

Firer	H'Cap Score
F. Welfare, X-10	49.156
W. Davy Sr., K-25	48.654
C. Brewster, Y-12	48.642
C. Asmanes, Y-12	47.403
R. Allstun, Y-12	47.469
P. Bullard, Y-12	45.781
L. Bray, Y-12	47.469
J. Case, Y-12	48.446
J. Comolander, Y-12	49.305*
D. Fry, X-10	47.929
R. McNabb, Y-12	47.440
B. Powers, Y-12	48.923*
V. Raaen, K-25	47.774
R. Searles, Y-12	47.589
T. Webber, Y-12	47.537
W. Weathersby, Y-12	41.563

*Previous Winner. Under Penalty.

Ball Rolls Big 254 Game In Starlite Race!

The Hi-Jackers and Woodpeckers share the limelight again in the Starlite Bowling League.

J. D. Ball, Has Beens, hit new season highs last week, rolling a single of 254 scratch, 280 handicap. His series of 604 scratch, 682 handicap were also high, naturally.

Latest standings follow:

Team	W	L
Hi-Jackers	34	14
Woodpeckers	34	14
Splitters	31	17
Has Beens	26	22
Dynapaths	23	25
Thunderbirds	23	25
Wild Cats	16	32
Jaguars	5	43

Mid-February finds many more Y-12ers becoming old-hands with Union Carbide Corporation. Congratulations.

25 YEARS

Kermit L. Duncan, Salvage Department, February 5.

Carroll H. Noe, Process Maintenance, February 7.

Willie J. Fowler, General Can Fabrication Shop, February 8.

Thomas A. Williams Jr., Reproduction, February 9.

Fred R. Sexton, 9212 Rolling Department, February 12.

James T. Creasman, General Expediting and Auxiliary Services, February 13.

Roy L. Luttrell, General Expediting and Auxiliary Services, February 14.

Lucille J. George, Building Services Department, February 14.

Elva J. Combs, Production Analysis, February 17.

James S. Tilley, Chemical Services, February 21.

Carl W. Hawkins, H-2 and F-Area Shops, February 24.

20 YEARS

Roy E. Monger, Numerical Control Engineering, February 4.

Edward W. Murray, Alpha Five Processing, February 6.

Richard W. Brothers, Shift Superintendents, February 6.

James J. Crowe, Casting Department, February 6.

Alice W. Gibson, Building Services Department, February 8.

James W. Young, General Plant Tooling Coordinating, February 13

Horace M. Monday, General Machine Shop, February 14.

Fred K. Clabough, General Machine Shop, February 21.

Arthur W. McGinnis, Mechanical Inspection, February 22.

15 YEARS

Charles R. Settles, Materials Testing Support, February 4.

Ned O. Patty Jr., Dispatching Department, February 5.

Clarence W. Williams, General Machine Shop, February 16.

Joseph V. O'Neil, Utilities Administration, February 18.

William P. Carroll, Machine Maintenance, February 19.

James E. Bullen, Tool Grinding, February 20.

Lynn B. Cabe, Facilities Engineering, February 21.

Willie J. Melton, Process Maintenance, February 23.

James H. Marcum, Assembly Operations, February 25.

Woodrow W. Raper, Reproduction, February 25.

Clarence E. Forester, General Machine Shop, February 25.

NAMESAKE

Monel metal, an alloy of nickel, copper, iron, manganese, silicon and carbon, was named for Ambrose Monel, an American manufacturer.

"I'll be glad when I get my degree in nuclear physics and get out of this educational rat race!"

Computes Grab Basketball Race

The big game came last week in basketball . . . February 2, as the undefeated GBU's and Computes squared off for bloodletting. Both teams had gone so far without defeat.

Then the big game came. The GBU's were limited to two baskets and eight foul shots in the first quarter, as the Computes rolled to a 23-12 lead at the first stop. They held the overhand most of the night with superior height and backboard strength. Larry Finch was his best at his favorite position directing the fast break, and racking up 27 points. The GBU's began to hit from the outside in the second quarter and brought the Computes out, enabling the GBU's to get some close-in shots. Larry McDonald was great in defeat.

League standings (February 4):

Team	W	L
Computes, ORNL	9	0
CC 69ers, Y-12	8	1
Rolling Bones, ORNL	8	2
Bombers, ORNL	7	3
Beta 2 Miners, Y-12	6	2
K-25 Trojans	6	3
Butterballs ,ORNL	6	3
Isotopes, ORNL	5	5
Spotters, ORNL	4	4
Aggressors, ORNL	4	5
Meat Loafs, ORNL	4	6
Road Runners, Y-12	3	6
Buccaneers, Y-12	2	6
Mod Squad, Y-12	3	7
Rats, Y-12	2	7
Quarks, Y-12	2	7
All Stars, ORNL	1	8
Hawks, Y-12	1	8
Development All Stars, Y-12	0	10

The Pack And Beavers Share Two In Volleyball

After watching an exhibition match with the University of Tennessee volleyballers, the three-plant volleyball league resumed recent action to separate the wheat from the chaff.

Meeting headlong last week were the top contenders for the league crown . . . the Beavers and the Pack (from ORNL). The Beavers were best in game one by 15-11. They turned around and lost games two and three 15-13 and 15-8 . . . but assumed command of the fourth match 15-10, to tie the series.

Team	W	L
Beavers	26	2
K-25 Hawks	26	6
The Pack, ORNL	22	2
Old Men, ORNL	21	7
Set-Ups, ORNL	18	6
K-25 Gashouse Gang	15	13
Eagles, Y-12	13	15
Y-12 Old Men	11	17
Bombers, ORNL	8	20
Blacksmiths, ORNL	7	21
Ecobums, ORNL	8	24
Boomerangs, ORNL	3	28
Beta 4 Commodores, Y-12	2	26

Big Five Retain 4-Point Margin On C League Lanes

The Big Five keep a substantial lead in the C League Bowling circles after two and one-half point wins the last three weeks. Bob Jago, and Jack Cowen, Hi-Lifers, have been bowling like a sage-brush fire. On January 19 Jago rolled a 237 scratch, 260 handicap game! Cowen followed the next week with a 236, 265 single! Ray Galford, Sunflowers, last week put a 232, 243 single game on the book.

	W	L
Big Five	21½	6½
Sunflowers	17½	10½
Badgers	17	11
Rounders	15½	12½
Instrument Engineers	15	13
Hi-Lifers	15	13
Fireballs	14½	13½
Rollmasters	13	15
Anodes	12	16
Go Go Gophers	9	19
Parbusters	9	19
Royal Flush	8	20

AMERICA GETS ITS NAME

America was named for Amerigo Vespucci (1454-1512), an Italian reputed to have made four voyages to the New World for Spain from 1497 to 1503. The German geographer, Martin Waldseemuller, first used the name to honor Vespucci in a book published in 1507.

Recreation

calendar

Monday, February 16
February 23

BOWLING: C League, 5:45 p.m. Ark Lanes.

TABLE TENNIS: 7 p.m., Wildcat's Den.

BASKETBALL: 6:30, 7:30, 8:30 p.m. Oak Ridge High School Gym.

Tuesday, February 17
February 24

PHYSICAL FITNESS (For Men): 7-9 p.m. Oak Ridge High School Gym.

BOWLING: Carbide Starlite Lanes, Knoxville, 8:30 p.m.

Wednesday, February 18
February 25

BASKETBALL: 6:30, 7:30, 8:30 p.m. Oak Ridge High School Gym.

BOWLING: Mixed League, 8 p.m. Ark Lanes.

Thursday, February 19
February 26

BOWLING: Classic League, 5:45 p.m., Ark Lanes.

VOLLEYBALL: 6:30, 7:45, 9 p.m. Oak Ridge High School Gym.

Rippers' Holzknecht Is Hot On Classic Lanes

The Has Beens stand straight and tall in the Classic Bowling League after four-point wins over the Tigers, the Eagles, and the Swingsters for the past three weeks. Out front by three points, the big team leads the pack.

Someone must have made the Rippers' Jay Holzknecht angry. Look at his scores for the past week or so. Last week he rolled a 258 scratch game, a 278 handicap single . . . and series of 597 scratch! The previous week he put a 247 scratch game, 268 handicap single . . . and series of 598 scratch, 661 handicap away!

League standings follow:

Team	W	L
Has Beens	18	2
Rippers	15	4
Rebels	14	6
Bumpers	14	6
Splinters	11	9
Markers	11	9
Eightballs	11	9
Swingsters	10	10
All Stars	10	10
Screwballs	10	10
Playboys	9	11
Smelters	8	12
Tigers	7	13
Cubs	7	13
Pinbusters	4	16
Eagles	1	19

Alley Cats Assume Mixed Alley Top-Slot

The action in the past three weeks in the Mixed Bowling League saw the Alley Cats take possession of the lead by one meager point. They have downed the Roses 'N Thorns, the Rollers, and the Spare Parts in that order.

Bowling like crazy have been Roy Scates, Goofers, and C. C. Roberts, Hits & Misses. Scates put a 595 scratch, 649 handicap series on the books . . . and Roberts rolled a 221 scratch, 262 handicap . . . 576 scratch, 709 handicap series up.

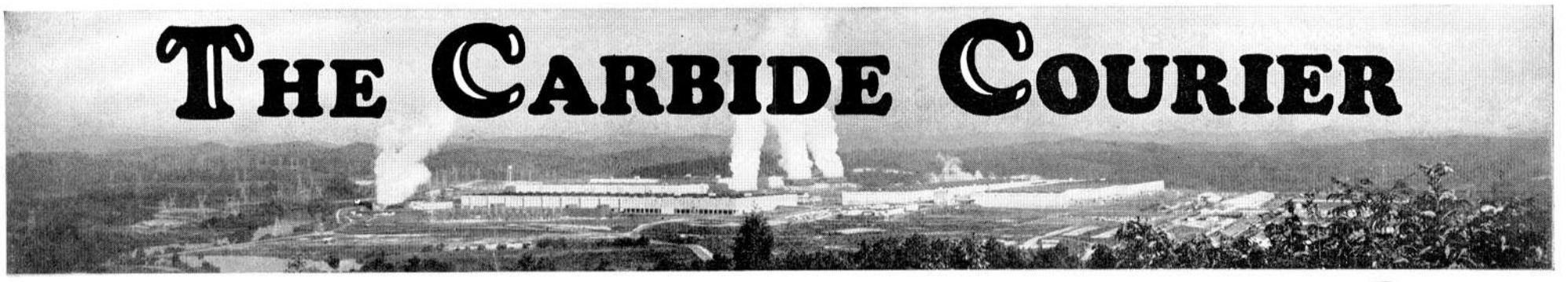
League standings follow:

Team	W	L
Alley Cats	18	6
Goofers	17	7
Hits & Misses	14	10
Twisters	12½	11½
Spare Parts	10	14
Rollers	9	15
Roses 'N Thorns	8	16
Mustangs	7½	16½

ATOM ATTACKS POLLUTION

Washington State University has developed a technique for attaching an iridium salt to wood fibers to study stream pollution problems in the pulp and paper industry. Waste discharged from plants is sampled and analyzed by neutron activation analysis to determine sources of pollution from paper plants.

THE CARBIDE COURIER



PH 69 1977 K-25

Carpenter Trainee Program Graduate Rates His Own Participation In Course

Editor's Note—Robert S. Knaff recently completed the Carpenter Trainee Program and is now working as a carpenter in the Buildings Department of the Fabrication and Maintenance Division. J. R. Quarles, General Foreman of the Buildings Department, requests his trainees to present a written evaluation at the end of their training period. Knaff's report was read to the Training Advisory Group and it was the consensus of this group that the report deserves publication. The report follows:

"When I hired into the Carpenter-Trainee Program here at the Gascous Diffusion Plant, I had spent the previous ten years as a construction carpenter. Prior to working for Carbide, I endeavored in many phases of the building trades. So to go back to the classroom, seemed an unholy waste of time and money. But through the years, there are a lot of processes that one acquires through experience that have a practical beginning in the classroom.

"When I start to lay out a building, or its foundation, I use a method that someone has shown me somewhere, thus using simple geometry and not knowing it. Carpenters in the field use a lot of short cut methods mainly handed down from one to the other.

"But the most important thing that one should know is why, why do we do this or that. A refresher course in mathematics that was available here, has been very beneficial. Being able to read blueprints, their symbols, and understanding them is very valuable.

"Some of the best training was the use of the framing square. This is the most useful, but one of the least used tools available to the carpenter. With this instrument one is able to figure board ft., measure angles, and construct various shapes. This instrument simplifies a lot of math that a carpenter would otherwise have to master.

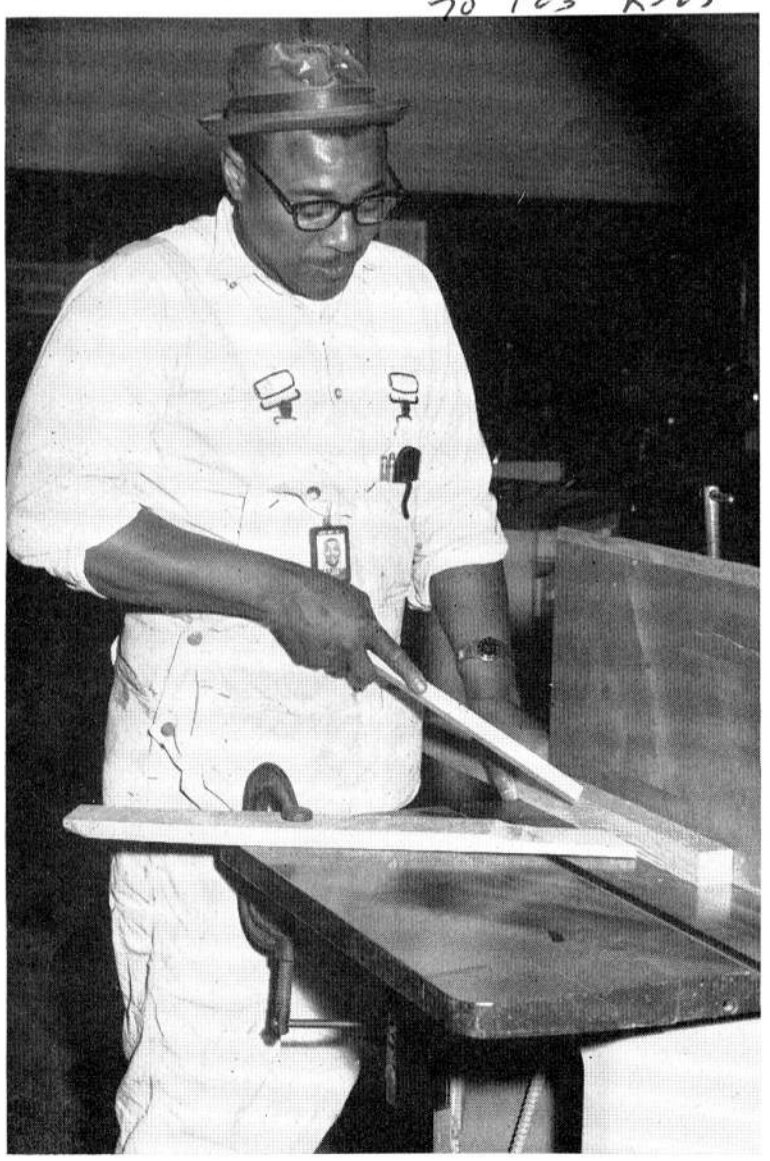
"Then there was the instructions given in industrial coatings. I merely assumed that one only needed a paint brush and some paint, and he was in business, although as a carpenter, I would think that this would be unnecessary to know, but far from it—right around my own home, I used for years, coating methods, wholly accepted in industry, but unknown to me. Such as the use of enamels in the kitchen and bath areas, latex for the living and recreation areas, the special coating for concrete surfaces, and special paints for metals, etc. inside and outside the home.

"There was a ten hour course in first aid that was very useful; this course was offered to the entire plant. Although a lot of things can be learned in the classroom, one must work at all phases of the trade to become truly proficient. I don't think anyone can describe how to begin to repair a cooling tower, or set forms. You can't begin to understand, how to use such tools as the jointers, planers, mortise and tenoning machines, table saws and cut off saws.

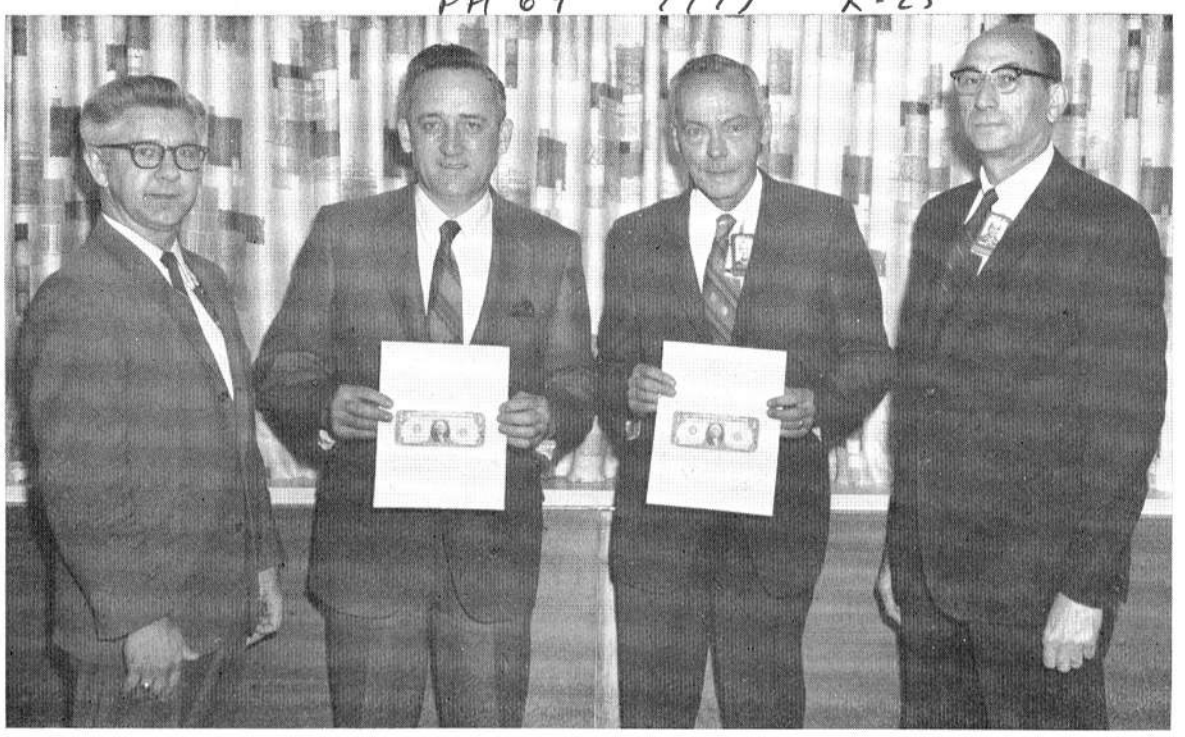
"So with the classroom instruction, the shop work, and the unlimited field work, one has a truly good opportunity to develop into a very proficient and valuable craftsman."

ROBERT S. KNAFF

70 123 K-25



CARPENTER R. S. Knaff is seen operating a shaper in the Carpenter Shop. Knaff recently completed a Carpenter Trainee Program Course in K-25, and his evaluation of the course is reprinted above.



PATENT APPLICATIONS WERE MADE recently in the name of the U. S. Government for Ralph Wright and George Petit. Above, they receive congratulatory letters signed by Roger F. Hibbs, President of the Nuclear Division. From left are C. W. Weber, head of the Chemical Analysis Department, Wright, Petit, and J. C. Barton, superintendent of the Laboratory Division, who made the presentation.

Marilyn Kelso Dies At Kingston Home

Marilyn (Mrs. George) Kelso, Senior Laboratory Analyst in the Physical Measurements Section of the Laboratory Division, died unexpectedly on Friday, January 30, from an apparent heart attack at her home at 1322 Byrd Circle in Kingston. She had been employed here at K-25 since March of 1954.

Mrs. Kelso

Mrs. Kelso was a native of, and attended public schools in Mendenhall, Mississippi. Her husband is employed by Southern Athletic Inc. in Knoxville. A daughter, Mrs. U. S. (Nancy) Myers, of Chattanooga, also survives.

Mrs. Kelso was a member of the United Methodist Church and she was fond of young people, spending much of her time informally with neighborhood teenagers.

Electrolytic Cleaning Process Brings Joint Patent Application To K-25 Men

George Petit and Ralph Wright have received their fifth patent application award resulting from their work in the Chemical Analysis Department of the Laboratory Division. They received one award apiece before they were assigned to the same group. The other four awards are the result of their joint efforts.

The patent application, entitled "Electrolytic Process for Cleaning High-Carbon Steels," is a single-step process for uniformly etching a high-carbon-steel surface, including its crystal boundaries, and for continuously removing from the surface the carbon exposed by etching. The steel surface is made anodic in an aqueous solution of orthophosphoric acid containing fluoride ion and a wetting agent. The applied voltage is selected to provide an overvoltage condition at the anode, liberating copious amounts of oxygen to sweep exposed carbon from the anode. High-carbon-steel surfaces so processed form a chemical bond with subsequently deposited metal coatings, such as nickel platings.

PETIT

George was born in Lexington, Ky., and was reared in the heart of the Blue Grass Country. He attended the University of Kentucky for one year after graduating from the Cynthiana, (Kentucky), High School. He spent the next few years as a grocer, butcher, and salesman. He served with the 91st Infantry Division in Italy during WW II and was wounded twice by mortar fire. He reentered the University of Kentucky in 1949 and graduated from there with a B.S. in Chemistry in 1952. He joined Carbide at the K-25 plant one week after graduation.

Petit is married to the former Jane Powers, a Tennessee girl and former Y-12 and K-25 employee. They live at 139 W. Madison Lane, Oak Ridge.

WRIGHT

Ralph was born and reared near Crossvile, Alabama. He attended UT night school, taking courses in general and advanced inorganic Chemistry. He completed a course in Electroplating, Electroless Plating, and Metal Finishing with Metal Engineering Institute (a division of American Society for Metals).

Ralph is married to the former Ethel Webb from Crossville. He has a son, Carl, 17 years of age and a daughter, Frances, 22 years of age. Both reside at home.

The Wrights have lived at 8011 River Drive, Oak Ridge, for the past 15 years.

Quotes From Notes From Our Retirees

"Dear Fellow Carbiders:

"I surely am enjoying my retirement. I am doing so many things I had looked forward to doing when I retired.

"I work two days a week as a Pink Lady at the hospital, go to art classes, work in ceramics, and many other things.

"The most exciting thing was that I visited my sister in Spain last summer. I saw things I never knew existed. We also spent a week in Paris. It was quite an experience.

"I worked in the Purchasing Division 21 years. I still miss the many friends I had there."

Sincerely,
DOROTHY (Dot) DAVIDSON
Orlando, Fla.

P.S. "I live in a beautiful high-rise apartment building for Senior Citizens. I have a lovely apartment with every convenience and very moderate rent."

K-25 CREDIT UNION OFFICERS for 1970. L to R, seated, C. B. Russell, E. S. Thompson, Evelyn Cole, V. O. Maggart, G. H. Domres, and J. M. Shumpert; standing—L. W. Atherton, B. M. Kelly, H. L. Mims, H. R. Bryan, M. N. Strickland and V. B. Goddard.

Annual Meeting

K-25 Credit Union Moves To Build Own Building In Grove Center Area

Approximately 120 members attended the 20th Annual Meeting of the K-25 Employees Federal Credit Union which was held at the OCAW-CIO Hall in Grove Center on Friday night, January 30, 1970.

Following the invocation, which was given by P. W. Honeycutt, V. O. Maggart introduced the credit union officials and employees, thanked Mrs. G. H. Domres for preparing and serving refreshments at the meeting, and reviewed the Board of Directors' Annual Report. Maggart announced that the Board of Directors had approved the payment of a 5.1% dividend which was posted to the individual accounts as of January 5, 1970. He also reported that the Board had requested a change in by-laws to the effect that any member who terminates or retires from the company after December 31, 1969, will no longer be eligible to serve as an official of the K-25 Credit Union, except that if they are serving at the time of termination or retirement they may continue to serve until the term for which they were elected expires. In addition, **the Board unanimously approved the construction of a Credit Union Office Building** (plans for which were on display at the meeting) on their lot in the Grove Center area. It is hoped that this building will be completed during 1970.

Comparison Made

E. S. Thompson, Treasurer, reviewed the treasurer's report and in doing so noted the following comparison between 1969 and 1968: Loans increased $165,367, investments decreased $285,000, shares increased $125,136, assets increased $172,494, total income increased $334,564, expenses increased $7,689, net profits increased $26,875, number of accounts increased 84, and number of potential members increased 113.

V. B. Goddard, Chairman of the Credit Committee, reviewed that committee's annual report pointing out that 2,987 loan applications were received during the year, of which 2,866 were approved for a total of $1,703,001.47. Total real estate loans outstanding as of December 31, 1969, amounted to $419,935.02.

Officers Are Named

D. R. Carter, Chairman of the Supervisory Committee, reviewed that committee's annual report and thanked the board, manager, and office staff for their usual good cooperation.

An election of officials was held with the following being elected for two years each; Board of Directors: V. O. Maggart, G. H. Domres, E. G. Cole, and H. R. Bryant; Credit Committee: J. M. Shumpert and M. N. Strickland.

A drawing was held for door prizes with Katie May and E. L. Rawlings and W. H. Adams each winning a country ham and Martha Brashears and C. W. Cunningham each winning a transistor radio.

Following the annual meeting the Board of Directors held a meeting and reelected V. O. Maggart, President; G. H. Domres, Vice President; E. S. Thompson, Treasurer; and Evelyn Cole, Secretary.

SAFETY SCOREBOARD

OUR PLANT
Has Operated
2,318,000 Safe Hours
Through Feb. 5
Since last disabling injury on August 19

Men's Wednesday Bowling League

By R. Deloor

The Pirates won the first half beating the Planners by one point. The Lab Demons are off to a good start and are leading the second half by four points. Since our last report there have been two outstanding series. Ernie Bogle rolled a 672 scratch with a 269 scratch game and Harry (Poe) Smith rolled a 660 scratch series with a 245 scratch game.

The Lab Demons have high single game score so far this season with a 1088. The Amps hold the best series honors with 3144 total pins.

Standings

Lab Demons	13	Mix-Ups	8
Planners	9	Rookies	7
Pirates	9	Sandbaggers	5
Amps	9	Feezers	4

CONVERSATION PIECE

The next time you meet a Tennessean and are looking for a subject for conversation . . . forget your dental work. Talk about fishing. The chances are pretty good that he will be a fisherman. Even nationally Tennesseeans are known as great fishermen . . . or at least that's what the Tennesseean says!

Engineering's Jones Earns Degree At UT

W. Dale Jones

W. Dale Jones, Design Engineer in the General Engineering Department of the Engineering Division, received a Master of Science degree in Civil Engineering from The University of Tennessee in recent commencement exercises. The title for Jones' thesis is "Influence Lines For Curved Girders."

Jones has been a Carbider since November, 1967. Prior to coming here he was employed over seven years as a Design Engineer in the Civil Design Branch of the Tennessee Valley Authority, Knoxville. Before working for TVA, he had served nearly three years in the U.S. Air Force including duties as an aerial navigator. He left the Air Force with the rank of First Lieutenant.

Jones was born in Revelo, Ky. He attended elementary school there and graduated from high school in Whitley City. He received a Bachelor of Science degree in Civil Engineering from the University of Kentucky in February, 1957, He is a Registered Professional Engineer in the state of Tennessee.

Mrs. Jones is the former Bernice Cadle of Oneida. They have three children at home in the Karns Community.

Car pool members wanted from Karns Community. D. J. Tevault, phone 3-3039; or R. J. McNamee, plant phone 3-3146.

Recreation calendar

Saturday, February 14
BOWLING: K-25 Bowling Tournament, Ark Lanes.
Sunday, February 15
BOWLING: K-25 Bowling Tournament, Ark Lanes.
Monday, February 16
February 23
BASKETBALL: 6:30, 7:30, 8:30 p.m. Oak Ridge High School Gym.
Tuesday, February 17
February 24
PHYSICAL FITNESS: 7-9 p.m. Oak Ridge High School Gym. (For Men Only).
BOWLING: K-25 Girls' League, 5:45 p.m. Ark Lanes.
BOWLING: K-25 Men's League, 8 p.m. Ark Lanes.
Wednesday, February 18
February 25
BOWLING: K-25 Men's League, 5:45 p.m. Ark Lanes.
BASKETBALL: 6:30, 7:30, 8:30 p.m. Oak Ridge High School Gym.
Thursday, February 19
February 26
VOLLEYBALL: 6:30, 7:45, 9 p.m. Oak Ridge High School Gym.

Men's Tuesday Bowling League

By Mal Strickland

In one of the lowest scoring sessions of the season thus far, Gwen "Fireball" Marrow (All Stars) rolled a fine 592 scratch series (652 handicap) and a 235 scratch game (255 handicap). All of his scores (scratch and handicap) were high for the night.

Bart "Smiley" Simcox shot a good 582 scratch series and a 227 scratch game to stay in contention while Harold "Curley" Gunter, rolling a 224 scratch game and 531 scratch series, was the only other bowler with anything "good."

Standings

Possibles	8	All Stars	4
Full House	6	Atoms	2
Double X	5	Late Comers	2
AECOP	4	City Slickers	2

Hawks, Gashouse Gang Take Volleyball Victims

The K-25 Hawks, a second-placed team in the Volleyball League, last week trounced the Blacksmiths from ORNL 15-10, 15-3, 15-8, and 15-5. They defeated their fellow plantsmen the Gashouse Gang the previous week for four games.

On January 20, the Hawks downed the Beta Four Commodores from Y-12.

The Gashouse Gang, who currently stand in sixth place in the 13-team league were idle last week . . . on January 20 they lost four to the Pack, from ORNL, who share top place in the big league.

Women's Bowling

Oleta Carden was Bowler-of-the-Week in the January 27 session after a two week postponement of the league due to bad weather. Jake rolled a 160, 156, 175-491 scratch series. **Martha Roberts** had the best scratch singles game with a 179. **Shirley Simmons** rolled a high handicap game, a 219. **Linda Orick** came up with a good 599 series handicap series.

Standings

Pay-Offs	11	Hot Shots	8
Pin-Ups	9	Bowlettes	8
Wood Bees	9	Purchurettes	6
Up-Towners	8	Spotters	5

Engineering

By F. Dodge

Denise Medved, 17, daughter of Mr. and Mrs. Martin Medved, was first alternate in the recent Junior Miss Knoxville Pageant. She received a $250 scholarship and a trophy. The contestants are judged on their poise, personality, scholastic achievement, and talent. Denise chose to play a piano solo for the contest.

She is a senior at Powell High School, where she is accompanist to the advanced chorus, copy editor of the annual staff, and fashion editor for the school paper. She is secretary of the student body and the Art Club and reporter of the senior class. Recently she was selected as an Outstanding Teenager of America from her school and was also initiated into the International Quill and Scroll Society. Her dad, Martin Medved, is in the Mechanical Engineering Department.

Miss Caroline Tolson, daughter of Jerry Tolson of Reactor Components Engineering Section, won the most blue ribbons in a recent flower show presented by the Knox County Council of Junior Garden Clubs. For the five categories in the show, Caroline won four blue ribbons (first) and one red ribbon (second). Her older sister, Becky, entered four events and won two blue ribbons, one red ribbon, and one yellow (third) ribbon.

Jerry has a lush plant in his office, think he says it is a begonia, but the fellows swear that whenever they get close to it, it reaches for them—one of these man eaters, so beware of reaching "begonias" especially in Jerry's office.

CAROLINE TOLSON with her blue ribbon winning Christmas wreath.

THE CARBIDE COURIER
Published Biweekly
Editor ..... H. J. Mayberry
K-1002 Building, Tel. 3-3097

February 22-28

Dr. John Swartout to Speak At Engineers Week Banquet

The week of February 22 - 28 has been designated as NATIONAL ENGINEERS WEEK. This activity is sponsored by the National Society of Professional Engineers, and is promoted in Oak Ridge by a Joint Committee composed of representatives from local chapters of the engineering societies. These groups include the American Institute of Chemical Engineers, the American Society for Metals, the American Society of Mechanical Engineers, the American Society of Non Destructive Testing, the American Society of Tool and Manufacturing Engineers, the Institute of Electrical and Electronic Engineers, the Instrument Society of America and the Tennessee Society of Professional Engineers (a member of NSPE).

The theme for ENGINEERS WEEK focuses on "Engineering—Environmental Design for the 1970's." A spokesman for the technical societies involved in Engineers Week observation made the following observations. The question of preserving our environment is not merely a matter of cleaning up the nation's rivers and attacking the problems of smog, vital as these objectives may be. The country must wake up to the fact that the quality of living space is seriously deteriorating on a broad scale. We recognize that our natural resources are priceless, yet exhaustible, heritage; that the practice of sound preservation should always be the national policy; and that many of the country's natural resources have been and are being exploited and wasted because of political and economic short sightedness in their development. Since most of these resources are both finite and irreplacable, their conservation and development requires a high degree of engineering competence in cooperation with other professional skills necessary to a sound conservation program. Professional engineers of high talent and experience in this vital area should be charged with the engineering aspects of conservation and natural resource development and improvement programs.

John A. Swartout

Local Activities

Activities for the week in Oak Ridge will include displays in five windows in the Downtown area which will be provided by the various engineering societies, plus a banquet. The banquet is scheduled for Thursday, February 26, at the Oak Ridge Country Club. A buffet dinner will be served at 7:30, preceeded by a social hour at 6:30. The featured speaker will be John A. Swartout, vice president, Union Carbide Corporation and Director of Technology. Dr. Swartout is well known in Oak Ridge, being a former City Councilman, and former Deputy Director of Oak Ridge National Laboratory. He was named a vice president of the corporation in December, 1968, after serving as director of technology since 1966. In his managerial post with Union Carbide, he is responsible for the coordination of the corporation's overall research and development; for the direct management of the corporation programs at four Union Carbide research centers; and for administration of the contract with the Atomic Energy Commission, governing the three plants here and the one at Paducah, Ky.

Well-Known Scientist

Dr. Swartout has been associated with Union Carbide since 1948 when the corporation was named operating contractor for ORNL. He had worked here since the beginning of Oak Ridge, holding several positions, becoming assistant director for the laboratory in 1950. He went on to assume the post of deputy research director in 1951 and deputy director in 1955. In 1964, he took a leave of absence to join the Atomic Energy Commission at its Washington office. He served there as assistant manager for reactors. Returning to Union Carbide in 1966, he was appointed general manager of corporation research and later in the year director of technology.

Dr. Swartout is an alumnus of the University of Buffalo where he was graduated with the degree of BS in 1937. He received his doctorate from Northwestern University in 1940. He is the author of numerous articles on nuclear reactor technology, radiochemistry, surface chemistry, and chemical separation processes. He was a member of the United States delegations to the first, second, and third international "Atoms for Peace" conference in 1955, 1958, and 1964.

Ticket Men Listed

He will speak on current environmental problems, of interest to both technical and non-technical persons. All engineers and their wives are invited to attend the banquet. The cost of the ticket is $4, and tickets may be obtained from local society representatives or any of the committeemen listed below.

Bill Tunnell, Y-12, from TSPE is general chairman of the committee which is arranging all the local activities. Other members include Pete Holz, Reactor Division, ORNL, from ASME; and John Sanders, Reactor Division, ORNL, from AICHE, who are coordinating publicity for the week; Jack Russell, Instrument Division, ORNL, from ISA, who is handling the downtown window displays; Al Willumsen, US AEC, from IEEE, banquet chairman; Bill Martin, Metallurgy Division, ORNL, from ASM, education chairman; Jim Gregory, K-25, from TSPE, budget chairman; Martin Brown, Y-12, from TSPE, coordinating tickets, and Knoxville affairs; Bill Myers, Y-12, from ASTME, and Lou Fitzgerald, Y-12, from ASNT. At K-25 tickets are also available from Fred Stout, K-1001, extension 3-3677, and from George Kidd, K-1401, extension 3-3429. Other Y-12 ticket sellers are N. S. Jessen, 9202, extension 3-5419; Tom Douglass, 9723-14, extension 3-5409; H. A. McClain, 9201-3, extension 3-5483; Tom Kress, 9204-1, extension 3-7637; and Romeo Green, 9733-1, extension 3-7776.

Bill Martin is organizing a number of panels to discuss engineering and related occupational activities and professions with students of several area schools.

In Knoxville, Engineering Week activities are being organized by a committee with Bob Campbell, State Highway Department, a member of TSPE, as chairman. Their activities will be highlighted by a noon luncheon Friday, February 27.

AEC Scientist Seeks Vaccine To Preserve 'Traveling' Salmon

Baby salmon can be given medicine to protect them from disease before they set out for the ocean, scientists have discovered at the Atomic Energy Commission's Pacific Northwest Laboratory near Richland, Wash.

Fish raised in hatcheries are fed food pellets laced with an oral vaccine. This may prevent infection from the bacterial disease, columnaris, which takes a heavy toll of salmon in the Columbia River and other river systems.

'Useful Vaccine'

Several years ago, columnaris almost wiped out a sockeye salmon run on a tributary of the Fraser River in Canada.

M. P. Fujihara, a biological scientist for Battelle - Northwest which operates the Pacific Northwest Laboratory for the AEC, developed the columnaris vaccine. Fujihara said it has been successful under controlled laboratory conditions.

Columnaris vaccine incorporated into fish food could be extremely useful to state and federal hatcheries which rear salmon for release into the river systems, he noted.

"However, successful application of the oral vaccine to large-scale production hatcheries will require several years of continued study," Fujihara added.

Many Are Exposed

With R. L. Tramel, a Battelle technician, Fujihara ran a survey of downstream juvenile salmon migrants and upstream adult salmon migrants in Washington and British Columbia to check the incidence of the disease, columnaris.

Blood samples taken showed that antibodies to the disease were present in about one-third of the sampled juvenile sockeye salmon. The adult salmon survey showed that about two-and-one-half percent of those starting up the Columbia River had been exposed to the disease. Among those which reached the spawning grounds hundreds of miles from the ocean, the incidence of exposure reached 70 to 100 percent.

Many of the salmon starting upriver never make it to the spawning beds. Many of the juvenile salmon which start downriver do not survive to make the long journey back upstream.

Increasing Survival

"If we could increase juvenile salmon immunity to columnaris to nearly 100 percent, more adults could make the return trip to their spawning grounds," Fujihara said. "Or, if we could increase general survival by 10 percent, we could possibly double the number of adults which could return to the spawning grounds."

Discovery of the vaccine resulted from AEC thermal effects studies on the Columbia River.

Traveler's Diarrhea

By T. A. LINCOLN, M.D.

By flying jet in a group tour, it is now possible to take a short vacation in a foreign country at a relatively modest cost. It is now easy to drive to Mexico City and Acapulco. Often, trips are scheduled to take advantage of local festivals, so being confined to a hotel because of illness for one or two days can ruin a trip.

Dr. Lincoln

In addition to tourist travel, thousands of business trips, often on a tight schedule, are made each year. Getting sick can mean considerable financial loss. Missing an appointment can mean the loss of a big contract.

Most Common Illness

By far the most common illness of travelers is diarrhea. It is more common in tropical or semi-tropical areas, but is common anywhere. U. S. residents arriving at Los Angeles International Airport from Mexico in the summer of 1957 were interviewed about their illness experience. Of those who spent seven days or more, 33% reported they had one or more attacks of diarrhea. In a 1960-61 study done in Mexico, 17% of a group of American students attending a summer session at Mexico City College and the University of Mexico developed diarrhea during their first week.

In a study of B.O.A.C. employees and their families, the incidence of traveler's diarrhea was 25% in Africa, 23% in the Middle East, 17% in Southern Europe, 16% in North and Central Europe, 15% in Asia, and 7% in North America. Travelers who have been to Asia and the Middle East probably doubt if diarrhea is less common there than in Europe. Indeed, in another study of United Nations observers in Lebanon, 32% developed diarrhea soon after they arrived. Each study finds the incidence a little different. The point is that it is not rare wherever you go in this country and is distressingly common in many foreign countries.

In most cases, the diarrhea occurs within three days of arrival and consists of profuse watery stools often containing mucus but never blood. Most feel tired, have considerable abdominal cramping and no appetite. About 10 to 20% will have nausea and vomiting. There is seldom any fever. The symptoms usually last one to three days.

A small percentage have true dysentary. Then the diarrhea is severe, blood and mucus are present in the stool and the victim has fever and is toxic.

Search For Cause Continues

The search for the cause of this sourge continues. It may surprise many to learn that it has not been found.

Maybe 5% of the cases of traveler's diarrhea are bacterial dysentary. The Salmonella and Shigella bacteria can readily be cultured from the stool. It has been popular to blame many cases on a "virus," although attempts to identify a consistent pathogen have been unsuccessful. The various viruses commonly cultured from the feecs are not usually associated with an enteritis.

A report just published in **Lancet** offers an intriguing new idea. The authors, B. Rowe, J. Taylor and K. A. Bettelheim, of the Central Public Health Laboratory, Colindale, London, identified a new strain of E. coli, a normal bacterial inhabitant of the lower intestine, which appeared to cause traveler's diarrhea in Aden, Arabia. The reason for their discovery was the use of a highly sophisticated serotyping technic which enabled them to precisely identfy all strains, including the new one. They suggested that when a person travels, he sometimes introduces a new strain of these universal bacteria into his gut, perhaps through the food and water he drinks. Because it is strange, its presence irritates the bowel, causing the temporary diarrhea. In a few days a person gets used to it. Much further study will be needed but the possibility of slightly different strains in each country or even city seems possible.

'Montezuma's Revenge'

So, maybe the gyppy tummy, Delhi belly, Hong Kong dog, Montezuma's revenge, the Aztec two step, turista or just the plain trots can be blamed on the body's reaction to a "stranger." After the initial fuss, the gut accepts the intruder with grace and everybody is happy.

In the meantime, anti-diarrhea medicines should be in every traveler's kit. If you happen to be the shy retiring type but have a good supply, you can suddenly become the most important and popular member of your tour group when the diarrhea strikes.

Calendar of Events

As a continuing service, Nuclear Division News **will publish information concerning seminars, technical meetings, and the community arts upon request.**

Technical

Feb. 13

ORNL ELECTRONUCLEAR DIVISION SEMINAR: "Recent Studies of Very Light Nuclear Systems with the Resonating-Group Method," R. E. Brown, University of Minnesota. Building 6000, Conference Room, 10 a.m.

UT-AEC AGRICULTURAL RESEARCH SEMINAR: "The Marmoset as an Experimental Animal in Immunology," Nazareth Gengozian. UT-AEC Conference Room, 3 p.m.

Feb. 17

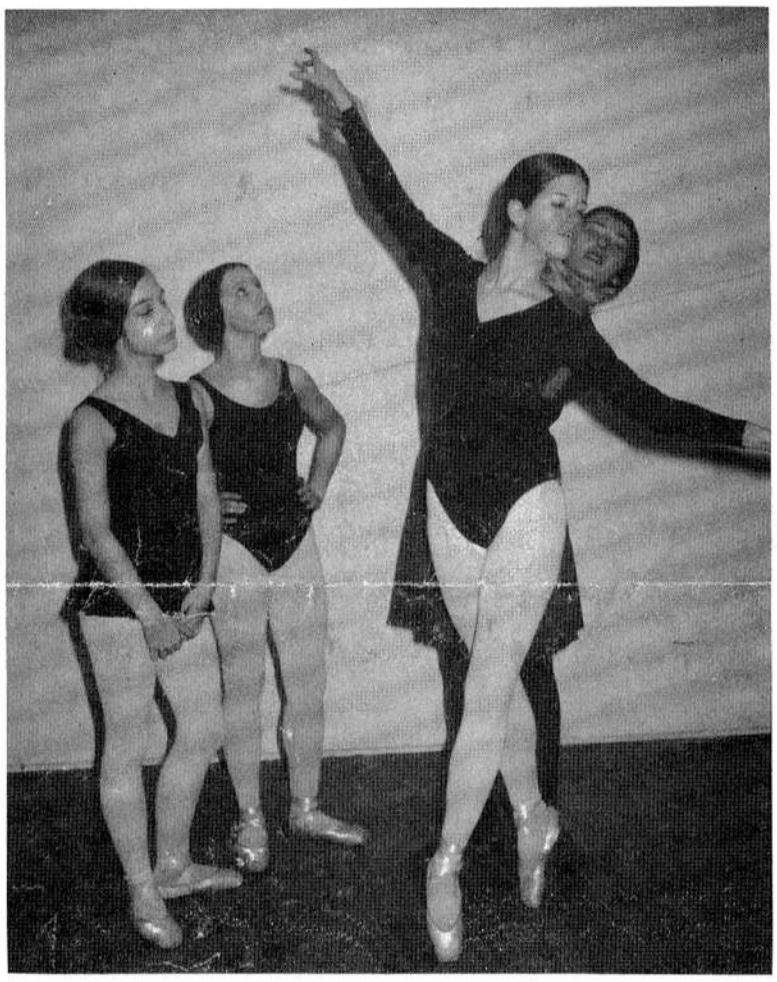
ORAU MEDICAL DIVISION STAFF SEMINAR: "Development of Fast Clinical Analyzers," N. G. Anderson. ORAU Main Conference Room, 4 p.m.

Feb. 20

ORNL CHEMICAL TECHNOLOGY SEMINAR: "Lanthanide Spectra," J. T. Bell and C. C. Thompson, Memphis State University. Building 4500-N, Central Auditorium, 3 p.m.

Feb. 27

ORNL BIOLOGY DIVISION SEMINAR: "Position Effect Variegation and Ribosomal RNA." W. K. Baker, University of Chicago. First Floor Tower Annex Conference Room, Building 9207, 12:15 p.m.



'KEEP THEM ON THEIR TOES'—That's the theme of the 1970 membership drive for the Oak Ridge Civic Ballet Association, a nonprofit community arts group designed to develop local dance talent and bring quality performances to Oak Ridge. Information about memberships may be obtained by contacting either Mrs. Takashi Makinodan, president, or Mrs. J. T. Gillespie, membership chairman. Shown here, from left, are student members of ORCBA's dance company—Martha Toomer (daughter of Mr. and Mrs. Lamar C. Toomer); Li Ferguson (daughter of Dr. and Mrs. R. L. Ferguson); and Natalie Levin (daughter of Mr. and Mrs. S. A. Levin). Helping Natalie is Joan Kunsch, ORCBA Artistic Director. Mr. Toomer works at the Computing Technology Center, Dr. Ferguson at Oak Ridge National Laboratory, Mrs. Ferguson at the Oak Ridge Gaseous Diffusion Plant, and Mr. Levin at the Oak Ridge Y-12 Plant.

Community

Feb. 13

The Oak Ridge Civic Music Association presents, from Germany, the Drolc String Quartet, now making its fourth American tour since 1962. At 8:15 p.m., Oak Ridge Playhouse. Admission: Adults $4, students $2.

Feb. 15

The Oak Ridge Art Center Film Club presents "La Guerre est Fini" (1966), directed by Resnais (France). At 8 p.m., Jefferson Junior High School. Admission: Adults $1, students 75 cents.

Feb. 20-22

The Oak Ridge High School Masquers, School Band, and Chorus present "My Fair Lady." At 8:15 p.m., Oak Ridge High School Auditorium. Admission: Adults $2, students $1.

Feb. 27

The Carbide All-Stars face the All-American Redheads, a professional women's basketball team that plays against only men's teams. The Champion women's team is brought to the area by the Oak Ridge Scottish Rite 32° Club. Last year the Redheads won 169 of 203 games played. At 8 p.m., Oak Ridge High School Auditorium.

Feb. 27-28

The Oak Ridge Community Playhouse presents "Hobson's Choice," a comedy. Box office opens Feb. 25. Presentations at 8:20 p.m., Oak Ridge Playhouse. Admission: $2.

LIBRARY LISTINGS

As a continuing service, Nuclear Division News **will publish representative lists of recent acquisitions by the libraries at Oak Ridge Gaseous Diffusion Plant, Oak Ridge National Laboratory, and the Oak Ridge Y-12 Plant. When possible, we will also include information concerning some recent additions to the library at Oak Ridge Associated Universities.**

OAK RIDGE GASEOUS DIFFUSION PLANT

ORGANIZATIONS: STRUCTURE AND BEHAVIOR (Vol. 1, 2nd ed.). J. A. Litterer.

MATRIX-COMPUTER METHODS IN ENGINEERING. L. A. Pipes.

GAS DYNAMICS. J. E. A. John.

MASS SPECTROMETRY AND ION-MOLECULE REACTIONS. P. F. Knewstubb.

ANALYTICAL CHEMISTRY OF LOW CONCENTRATIONS. I. M. Korenman.

METALLURGICAL THERMOCHEMISTRY (4th ed.). O. Kubaschewski.

THERMAL INSULATION. J. F. Malloy.

UNUSUAL METHODS OF SEPARATION. J. A. Gerster, Ed.

OAK RIDGE NATIONAL LABORATORY

THE SCIENCES OF THE ARTIFICIAL. H. A. Alexander (Biology Library).

RESIDUE REVIEWS, RESIDUES OF PESTICIDES AND OTHER FOREIGN CHEMICALS IN FOODS AND FEEDS. F. A. Gunther, Ed. (Biology Library).

THE CANCER PROBLEM, A CRITICAL ANALYSIS AND MODERN SYNTHESIS. C. A. Braun. (Biology Library).

BIOLOGICAL PHOSPHORYLATIONS, DEVELOPMENT OF CONCEPTS. H. M. Kalekar (Biology Library).

STRATEGIES OF AMERICAN WATER MANAGEMENT. G. W. White (ORNL Central).

MATHEMATICS AND PLAUSIBLE REASONING (2nd ed.). George Polya (ORNL Central).

PROPERTIES OF SOLIDS AND THEIR ATOMIC STRUCTURES. H. G. M. Bowen (ORNL Central).

INVESTIGATION OF AN ELECTRONMAGNETIC TRAP (Translated from Russian) (Thermonuclear Library).

RADIO AMATEURS HANDBOOK (46th ed.). (Thermonuclear Library).

OAK RIDGE Y-12 PLANT

WATER TEMPERATURE — INFLUENCES, EFFECTS, AND CONTROL (Proceedings of Conference).

MAGNETIC MATERIALS. R. S. Tebble and D. J. Craik.

STRUCTURE AND BONDING. C. K. Jorgensen, Ed.

ASTRONAUTICS AND AERONAUTICS, CHRONOLOGY ON SCIENCE, TECHNOLOGY, AND POLICY. 1967. (National Aeronautics and Space Administration).

PROGRESS IN MATERIALS SCIENCE (INCORPORATING PROGRESS IN METAL PHYSICS) (Vol. 14). Bruce Chalmers and William Hume-Rothery, Eds.

PHOTOCHEMICAL PROCESSES. B. Albertson and Chemical Process Review, No. 36.

THE ENCYCLOPEDIA OF BASIC MATERIALS FOR PLASTICS. H. R. Simonds and J. M. Church.

LIBRARY STATISTICS OF COLLEGES AND UNIVERSITIES.

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Earnings From Savings Plan Subject to Regular Tax Rate

Company contributions and interest earned from the General Savings Plan and included in checks distributed to active employees in June, 1969, are considered regular income for federal income tax purposes.

The Internal Revenue Service has indicated that all contributions and interest shown in the 1969 checks should be reported as income subject to the regular income tax rate.

On June 30, 1969, more than $16,300,000 was distributed to employees at the Oak Ridge facilities operated by the Nuclear Division. The money represented the employee's savings since July 1, 1967, plus interest earned on these savings, the Company's contributions for the two-year period ending June 30, 1967, and interest on the Company's payments into the trust fund on behalf of each participant during the last two years.

While the Company contributions and interest were figured on the two-year period ending June 30, 1967, the money was included in the 1969 checks distributed to active employees and therefore must be considered as regular income when reporting your 1969 earnings.

AEC Collection Now Available At Special Rate

Employees of the Nuclear Division are being given the opportunity to purchase the first volume and newly published second volume of "A History of the United States Atomic Energy Commission" at substantially reduced prices.

The first volume entitled "The New World 1939/1946" was published in 1962. Last year the second volume "Atomic Shield 1947/1952" by Richard G. Hewlitt, Chief Historian of the AEC, and Francis Duncan, a member of his staff, was published by The Pennsylvania State University Press.

Through special arrangements between the publisher and the AEC, copies of the comprehensive history are being offered to employees at the following costs:

The Atomic Shield—$7.25 (retail price — $11.95). The New World—$5.75 (retail price—$9.50). Boxed set of both volumes —$11.00 (retail price—$17.95.)

Employees interested in purchasing these books may do so by writing a check for the books wanted, making the check payable to The Pennsylvania State University Press. (Please, no cash.) The check should be sent to Mrs. Ruth Carey, Personnel Division, AEC's Oak Ridge Operations, who is handling AEC and contractor orders from Oak Ridge. She will forward them as a package to the publisher when all orders are received. After the books are received, they will be sent to your mail station. For additional information, Mrs. Carey can be reached at 483-8611, extension 3-4471.

All orders should be submitted to Mrs. Carey by March 1.

50 Cent Dividend Declared

The board of directors of Union Carbide Corporation has declared a quarterly dividend of fifty cents a share on the outstanding capital stock of the corporation payable March 2, to stockholders of record at the close of business February 6, 1970.

New Battery Plant Planned for Africa

Plans for the construction of Union Carbide Corporation's third battery plant in Africa, to be located in Abidjan, the capital of the Republic of the Ivory Coast, have been announced by Birny Mason, Jr., corporation chairman. The plant will cost about $1.5 million.

Expected to be in operation toward the end of 1970, the new plant will produce dry cells for flashlights, transistor radios, and general applications for sale in the Republic of the Ivory Coast and associated franc-zone republics of West Africa. The area, which has a population of more than 23 million, has no dry cell manufacturing facilities at present.

The corporation's other battery plants in Africa are located in Kenya and Ghana.

CAC in Anderson County Seeking Many Teachers

Like to try your hand at teaching? The Anderson County Community Action Commission needs volunteer teachers for its adult education program in the Laurel Grove community.

ACCAC says you need a high school education, or more, and a sincere desire to help strongly motivated people who wish to further their education, basic through high school.

Interested parties should contact DeVaughn Nelson, extension 3-6954, or at his Oak Ridge telephone 482-3229.

RADIOISOTOPES DECREASE

A total of 2.46 million curies of processed radioisotopes was distributed by Oak Ridge National Laboratory, the Atomic Energy Commission's principal sales point for radioisotopes, during 1969. This was a decrease of 45 per cent over the same period a year ago. This reflects continued AEC withdrawal from routine production of specific isotopes when they become available reasonably from private industry. To date the AEC has discontinued selling 37 such isotopes.